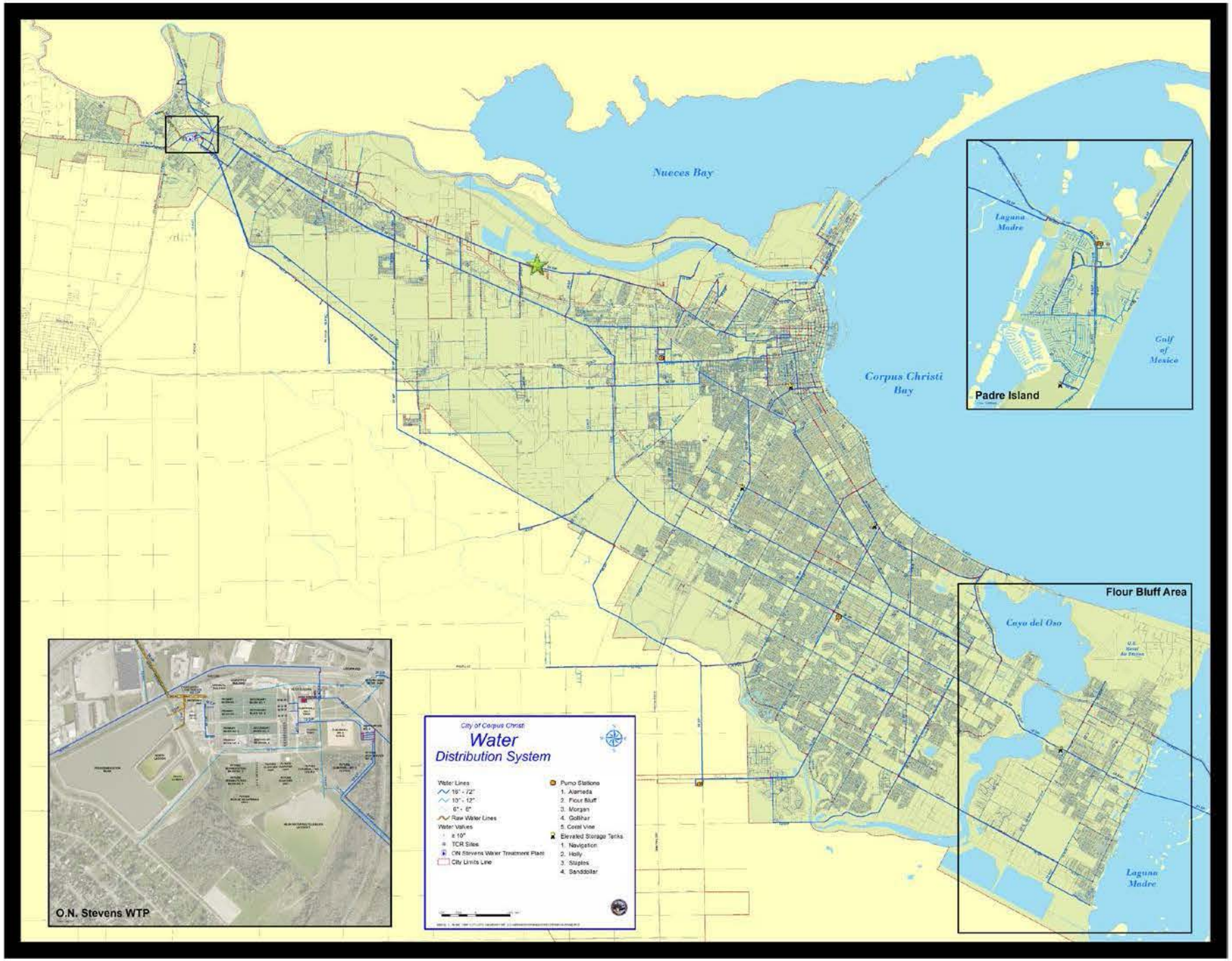

Nueces Bay
Corpus Christi Bay
Laguna Madre
Gulf of Mexico
Padre Island
Flour Bluff Area
Cayo del Oso
Laguna Madre
O.N. Stevens WTP
City of Corpus Christi
Water
Distribution System
Water Lines
16" - 72"
10" - 12"
6" - 8"
Raw Water Lines
Water Valves
≥ 10"
TCR Sites
ON Stevens Water Treatment Plant
City Limits Line
Pump Stations
1. Alameda
2. Flour Bluff
3. Morgan
4. Gollihar
5. Coral Vine
Elevated Storage Tanks
1. Navigation
2. Holly
3. Staples
4. Sanddollar

9421558

Potential Backflow Incident

- Dirty Water Call at 6746 Up River Rd. (Workorder 12/1, Follow up 12/7, Workorder 12/12); flushed each time and cleared up within two to four minutes following standard operating procedures.

- All five hydrants were flushed on the 8” line on (Workorder 12/1, Follow up 12/7, Workorder 12/12, Follow up 12/13, and Final Follow up 12/14) in response to a dirty water call received by a customer. The 8” line remained clear and the discolored water remained onsite. Dead end main flushing operating procedures were followed.

- Flushed Dead End Main 1346 on (Dead end main flushing program 12/12, Follow up 12/13, Final Follow up 12/14) as part of the dead end main flushing program and in response to the dirty water calls received by a customer. Standard operating procedures were followed.

Potential Backflow Incident Continued

- City discovered no backflow preventer on the line to Ergon from Valero on 12/14/16 and the backflow preventer (Reduced Pressure Zone) was installed on 12/14/16 and certified on 12/15/16.

- Sampled 12/14/16 for Hexane Extractable Materials (Oil and Grease), Fatty Acid Analysis from 5 hydrants on 8” line and on three hydrants on the Upstream 24” line plus the sample site at Southern Minerals.
  - Eight of nine samples had Hexane Extractable Materials levels less than the minimum reporting limit while the ninth sample had a very low detectable Hexane Extractable Materials level.
  - We are still awaiting the Fatty Acid Analysis– hoping to receive results today.

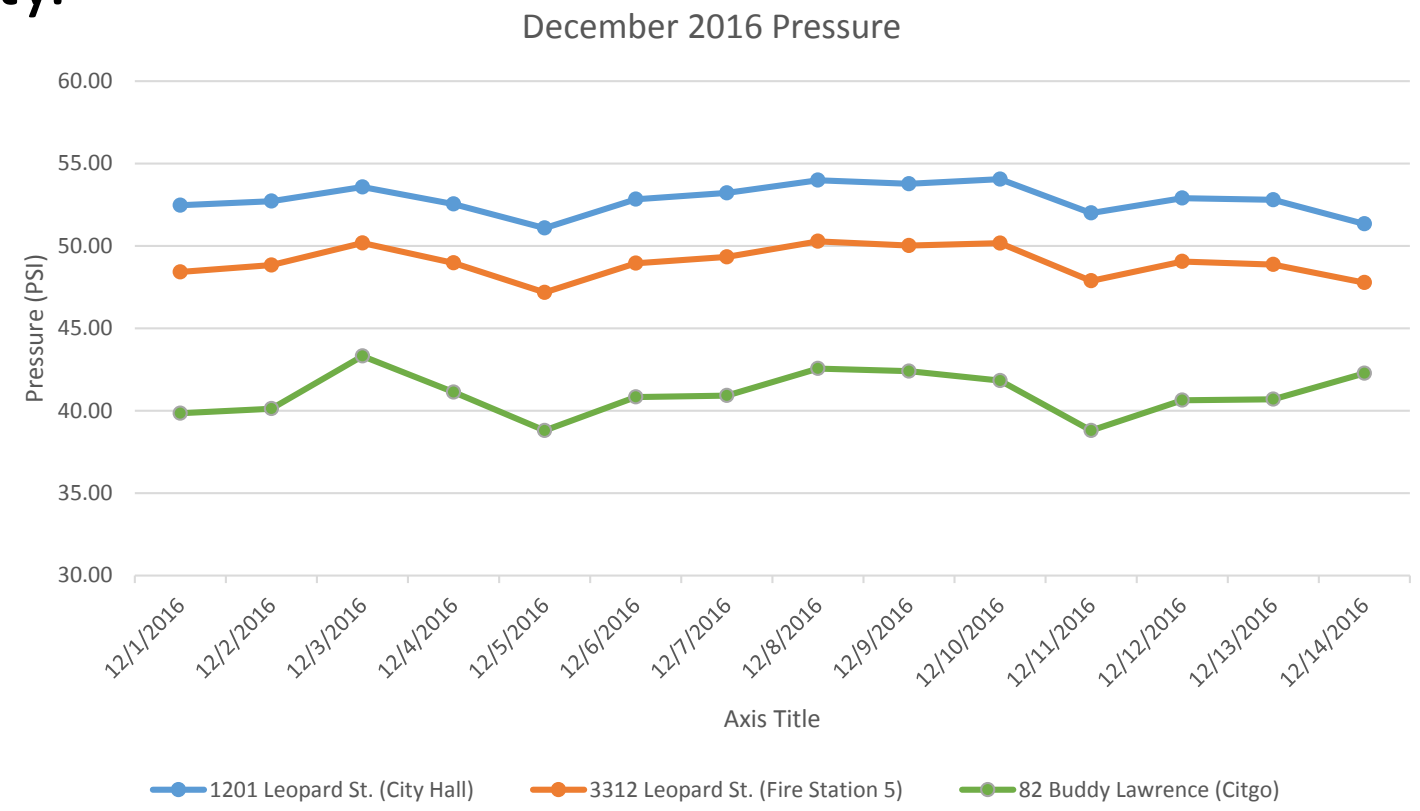
Potential Backflow Incident Continued

- As soon as we found out, customer water was shut off (Valero Asphalt Terminal) on 12/14/16. A Customer Service Inspection is currently being conducted by City staff and water remains shut off to Ergon.

- There are six lab reports pending for Volatile Organic Carbons analysis for samples that the City collected on 12/14 and 12/15 alongside TCEQ staff.

- Texas Commission on Environmental Quality samples were submitted to the Department of State Health Services lab in Austin, Texas on 12/15/16 and results are pending.

- Currently gathering Supervisory Control And Data Acquisition data for pressure Pounds per Square Inch (PSI) for the following locations: Citgo, Fire Station #5, and City Hall.
- Goal is to show that Citgo always has a lower PSI compared to the other two so the water would not flow from Citgo area to other parts of the City.



Progress on Backflow Incident

- Met with TCEQ today (12/15/16 at 8:30 am) whom requested the following:
  - All valve locations within the industrial area
  - Locations that have already been flushed
  - Narrative of events and sample locations
  - Incident site setup
  - MSDS on chemicals involved in release
  - Updated hydraulic model

Suspect Contaminants

- Batch mixture containing:
  - 24 gallons Indulin AA-86 (0.72%)
  - 10 gallons Hydrochloric Acid (0.30%)
  - 3,266 gallons of potable City of Corpus Christi water

  Total batch = 3,300 gallons

*All concentrations were given to us by Ergon Asphalt & Emulsion, Inc.

Indulin AA-86

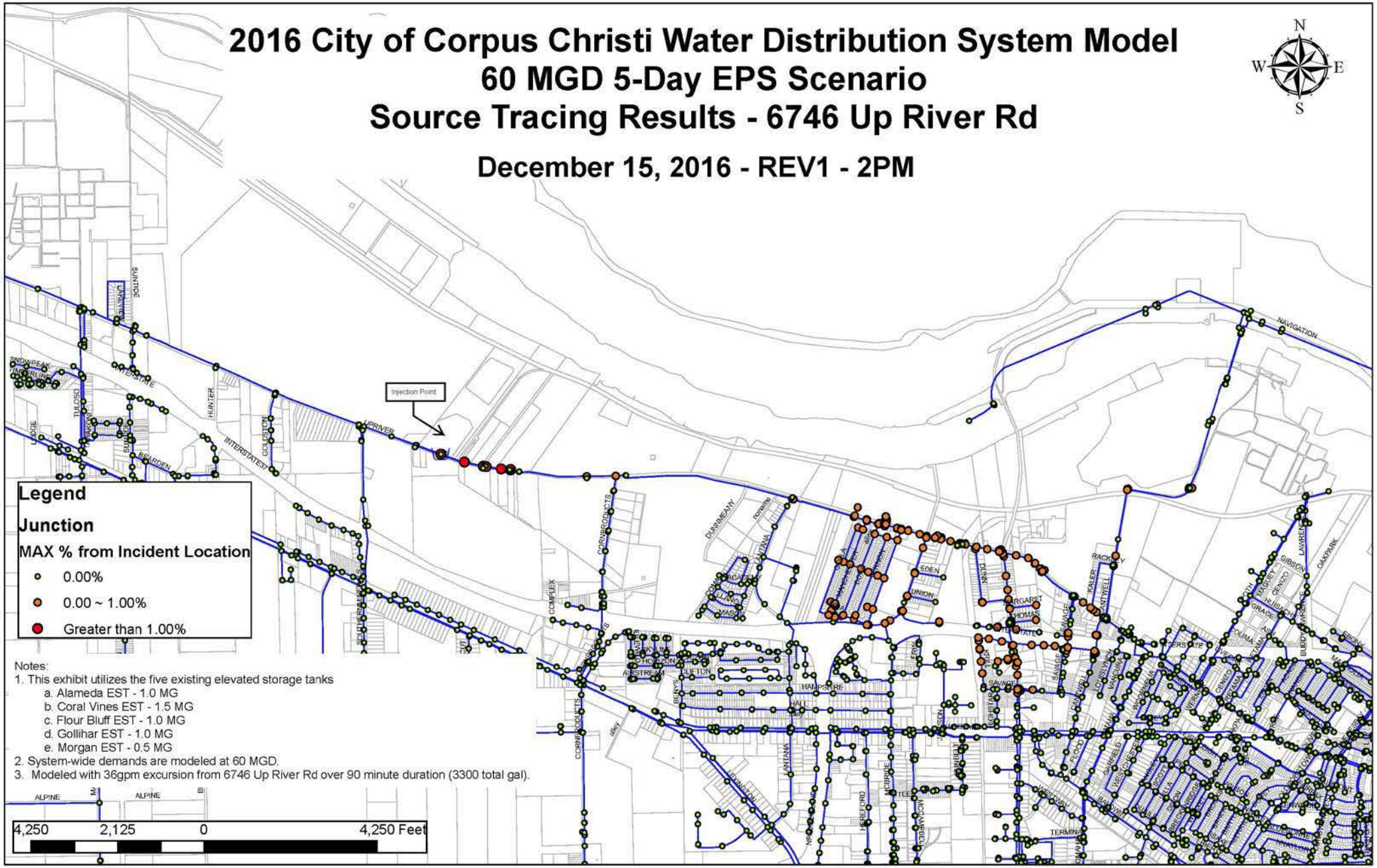
- Specialized chemical similar to soap used to help make cement and oil in asphalt mix together
- Hydrochloric Acid allows chemical to mix with water and is same pH strengths in human stomach
- MSDS shows some health impacts for full strength chemical, but it is unknown if there are any health impacts at dilute water concentrations found in drinking water
- No established method for detection of chemicals at low concentration. Coordinating with TCEQ, CDC and EPA .
- Do not know exact chemical composition but are procuring from Manufacturer through non-disclosure agreement.
- Broad screen analysis shows low or non-detect for standard chemical analysis

Hydraulic Model

- Computer program that simulates how water moves through the pipe network
- The best tool to predict a water systems behavior or its response to various emergency/operational scenarios
- The model was developed to introduce the contaminant at 6746 Up River Road (worst case scenario: 3,300 gallons over 1.5 hour period) and how it potentially moves through the system over the next 5 days

2016 City of Corpus Christi Water Distribution System Model
60 MGD 5-Day EPS Scenario
Source Tracing Results - 6746 Up River Rd

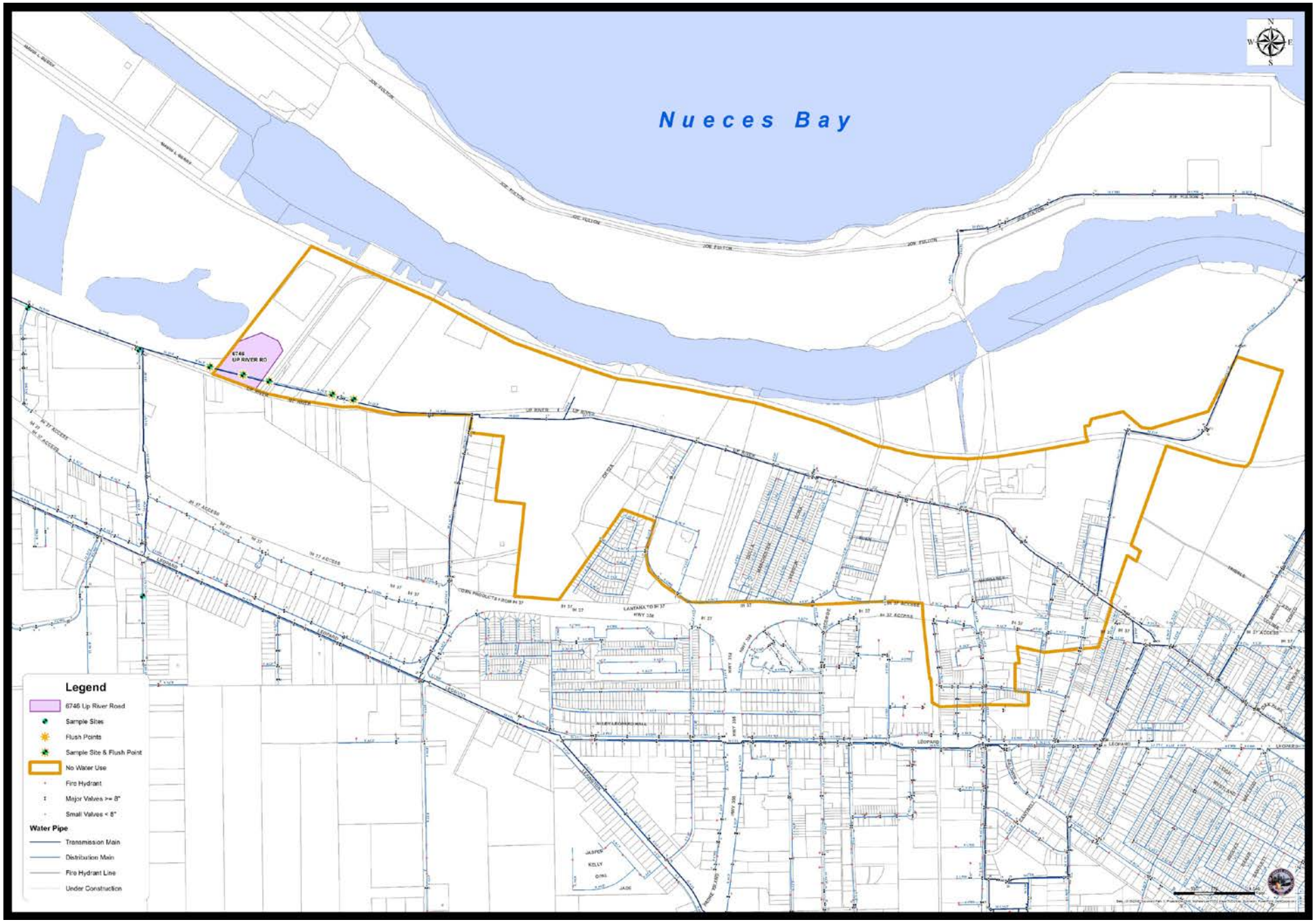
December 15, 2016 - REV1 - 2PM



Explanation of Results

- Period simulation over a 5-day period
- 1% shown in legend of water model equals approximately 0.007% Indulin AA-86
- Hydraulic model shows zone of influence to be contained in the industrial area

Zone of Influence



Path Forward

- Hoping for meeting with TCEQ to review data tonight
- Localized no water use area to industrial area as soon as possible
- Continue working on testing methods for confirmation of safe water